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			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/669,118

Applicant(s)

YOSHIOKA ET AL.

Examiner

Gevell Selby

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 10, 11, and 13, 15 - 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishikawa, US 5,946,028.**

In regard to claim 10, Ishikawa, US 5,946,028, discloses a digital camera comprising:

an image sensor (see figure 2, element 8) disposed at a position at which

an image is to be formed by a taking lens (see figure 2, element 7); and

an optical element (see figure 1, element 4) movable between an advanced position intersecting at an inclination the optical path from the taking lens to said image sensor, and a retracted position removed from the optical path (quick return mirror: see column 3, lines 35- 40),

wherein said digital camera is controllable under a first photographic mode (viewing) wherein said optical element is set at the advanced position for photography, and a second photographic mode (image capture) wherein said optical element is set at the retracted position for photography, and the optical

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path lengths from the taking lens to said image sensor are equalized in the first photographic mode and the second photographic mode by moving the taking lens in a direction along the optical axis of the taking lens (see column 1, lines 62-65).

It is well known and old in the art that a quick return mirror is rotated into advanced position in the optical path, when in viewing mode, and when the camera is in image capture mode, the mirror is rotated up out of the optical path to a raised position as explained in the applicant's background describing a SLR type digital camera (see page 3, lines 4-15). When the mirror is lowered in Ishikawa's camera, the lens can be moved to adjust the focus.

In regard to claim 11, Ishikawa, US 5,946,028, discloses a digital camera according to claim 10, wherein said optical element is at least a single element for photography (see figure 1, element 4 and column 3, lines 35-40).

In regard to claim 13, Ishikawa, US 5,946,028, discloses a digital camera according to claim 10, wherein said optical element (quick return mirror) is moved between the advanced position and the retracted position by rotation (see column 3, lines 35 – 40).

A quick return mirror as defined by the applicant "is retracted from the optical path by rotation...the mirror is controllably returned onto the optical path directly after photography" (see page 3, lines 4-15).

In regard to claim 15, Ishikawa, US 5,946,028, discloses a digital camera according to claim 10, wherein said image sensor is movable between a first position (out of focus) and a second position (focused), and said image sensor is positioned in the first

position when said optical element is in the retracted position and positioned in the second position when said optical element is in the advanced position, wherein the second position with said optical element intersecting the optical path and the first position without said optical element are optically equivalent with each other (see column 3 line 61 to column 4, line 9).

The camera disclosed by Ishikawa, US 5,946,028, has an image sensor and lens that can be moved together or independently from an out-of-focus position to an in-focus position. The examiner reads the Ishikawa, US 5,946,028, as implying that when the mirror is in the raised position for image capture mode, the lens is at the first position. When the quick return mirror is lowered into the optical path, the lens is moved to a second position to adjust the focus for the next image capture.

In regard to claims 16 and 17, Ishikawa, US 5,946,028, discloses a digital camera according to claim 15, wherein the first position and the second position are set so as to equalize the optical path length from the taking lens (see column 1, lines 63-65) and directly to said image sensor and to equalize the imaging position of an image formed by the taking lens directly on said image sensor (see column 5, lines 45-52) when said optical element is set at the retracted position, and the optical path length from the taking lens through said optical element to said image sensor when said optical element is set at the advanced position.

The lens and the image sensor are moved together an equal distance from the first position to the second position, keeping the optical path length equalized. A computer

can adjust the lens and image sensor independently in order to equalize the imaging position.

3. Claims 1, 2, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Osawa et al., US 6,327,085.

In regard to claim 1, Osawa et al., US 6,327,085, discloses a digital camera (see figure 3) comprising:

an image sensor (see figure 3, element 15) disposed at a position at which an image is to be formed by a taking lens (see column 12, line 63 to column 13, line 2);

a recorder for recording on a recording medium an image sensed by said image sensor in accordance with recording instructions (see column 3, lines 45-50 and column 15, lines 18-26);

[It is inherent that the camera has a recorder to record the image onto the film.]

a semitransparent mirror (see figure 3, element 12) which rotates about an axis in a direction perpendicular to the optical axis of the taking lens so as to move between an advanced position intersecting at an inclination the optical path from the taking lens to the image sensor, and a retracted position removed from the optical path (see column 12, lines 45-50); and

an optical finder (see figure 3, element 23) providing an image by directing the light reflected by said semitransparent mirror set at the advanced position from the taking lens to the eye of a user (see column 12, lines 56-62).

In regard to claim 2, Osawa et al., US 6,327,085, discloses a digital camera according to claim 1, wherein said semitransparent mirror is a quick return mirror (see figure 3, element 12 and column 12, line 49).

In regard to claim 8, Osawa et al., US 6,327,085, discloses a digital camera according to claim 1 further comprising a display (see figure 3, element 23) for displaying an image sensed by said image sensor (see column 12, lines 46-62).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 3, 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa et al., US 6,327,085 in view of Ishikawa, US 5,946,028.**

In regard to claim 3, Osawa et al., US 6,327,085, discloses a digital camera according to claim 1, but lacks the limitation wherein:

said image sensor is movable between a first position and a second position, and said image sensor is positioned in the first position when said semitransparent mirror is in the retracted position and positioned in the second position when said semitransparent mirror is in the advanced position,

wherein the second position with said semitransparent mirror intersecting the optical path and the first position without said mirror are optically equivalent with each other.

Ishikawa, US 5,946,028, discloses a digital camera with an image sensor and lens that can be moved together or independently from an out-of-focus position to an in-focus position. The examiner reads the Ishikawa, US 5,946,028, as implying that when the quick return mirror is in the raised position for image capture mode, the lens is at the first position. When the quick return mirror is lowered into the optical path, the lens is moved to a second position to adjust the focus for the next image capture (see column 3 line 61 to column 4, line 9). A computer can adjust the lens and image sensor independently in order to equalize the imaging position making them optically equivalent (see column 5, lines 45-52).

It would have been obvious to a person skilled in the art, at the time of invention to modify Osawa et al., US 6,327,085, in view of Ishikawa, US 5,946,028, to have:

said image sensor is movable between a first position and a second position, and said image sensor is positioned in the first position when said semitransparent mirror is in the retracted position and positioned in the second position when said semitransparent mirror is in the advanced position,

wherein the second position with said semitransparent mirror intersecting the optical path and the first position without said mirror are optically equivalent with each other,

in order to move the elements into an in-focus position see column 3, line 61 to column 4, line 2).

In regard to claim 4, Osawa et al., US 6,327,085, in view of Ishikawa, US 5,946,028, discloses a digital camera according to claim 3, wherein:

the first position and the second position are set so as to equalize the optical path length (see column 1, lines 63-65) from the taking lens directly to said image sensor when said semitransparent mirror is set at the retracted position, and the optical path length from the taking lens through said semitransparent mirror to said image sensor when said semitransparent mirror is set at the advanced position.

The lens and the image sensor are moved together an equal distance from the first position to the second position, keeping the optical path length equalized.

In regard to claim 5, Osawa et al., US 6,327,085, in view of Ishikawa, US 5,946,028, discloses a digital camera according to claim 3, wherein the first position and the second position are set so as to equalize the imaging position of an image formed by the taking lens directly on said image sensor when said semitransparent mirror is set at the retracted position, and the imaging position of an image formed by the taking lens through said semitransparent mirror on said image sensor when said semitransparent mirror is set at the advanced position (see column 5, lines 45-52).

A computer can adjust the lens and image sensor independently in order to equalize the imaging position making them optically equivalent.

In regard to claim 6, Osawa et al., US 6,327,085, discloses a digital camera according to claim 1 but lacks:

a driver for moving the taking lens between a first position and a second position in a direction along the optical path, the first position and the second position are set so as to equalize the optical path length from the first position directly to said image sensor when said semitransparent mirror is set at the retracted position, and the optical path length from the second position through said semitransparent mirror to said image sensor when said semitransparent mirror is set at the advanced position.

Ishikawa, US 5,946,028, discloses a digital camera with an image sensor and lens that can be moved by motors (see column 5, lines 46-52) together or independently from an out-of-focus position to an in-focus position. The examiner reads the Ishikawa, US 5,946,028, as implying that when the quick return mirror is in the raised position for image capture mode, the lens is at the first position. When the quick return mirror is lowered into the optical path, the lens is moved to a second position to adjust the focus for the next image capture (see column 3 line 61 to column 4, line 9). A computer can adjust the lens and image sensor independently in order to equalize the imaging position making them optically equivalent (see column 5, lines 45-52).

It would have been obvious to a person skilled in the art, at the time of invention to modify Osawa et al., US 6,327,085, in view of Ishikawa, US 5,946,028, to have:

a driver for moving the taking lens between a first position and a second position in a direction along the optical path, the first position and the second position are set so as to equalize the optical path length from the first position directly to said image sensor when said semitransparent mirror is set at the

retracted position, and the optical path length from the second position through said semitransparent mirror to said image sensor when said semitransparent mirror is set at the advanced position,

in order to move the elements into an in-focus position see column 3, line 61 to column 4, line 2).

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa et al., US 6,327,085 in view of Togino, US 6,128,144.

In regard to claim 7, Osawa et al., US 6,327,085, discloses a digital camera according to claim 1, wherein:

said digital camera is controllable under a first photographic mode wherein said semitransparent mirror is set at the advanced position until recording is instructed (see column 12, lines 49-51), and set at the retracted position when recording has been instructed (see column 12, lines 63-64), and returns to the advanced position again when said image sensor completes the sensing of the image (see column 12, 49-51),

but lacks a second photographic mode wherein said semitransparent mirror is set at the advanced position regardless of whether or not the recording is instructed.

Togino, US 6,128,144, discloses a single reflex camera with a photographic mode wherein the semitransparent mirror is set at the advanced position when recording (see figure 60 and column 53, 25-40).

It would have been obvious to a person skilled in the art at the time of invention to modify Osawa et al., US 6,327,085, in view of Togino, US 6,128,144, to have a second photographic mode wherein said semitransparent mirror is set at the advanced position

regardless of whether or not the recording is instructed in order to print data (e.g. date) on the film see column 53, lines 31-35).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa et al., US 6,327,085 in view of Aoki et al., US 4,553,170.

In regard to claim 9, Osawa et al., US 6,327,085, discloses a digital camera according to claim 8, wherein:

said digital camera is controllable under a first photographic mode wherein said semitransparent mirror is set at the advanced position until recording is instructed, and set at the retracted position when recording has been instructed, but lacks:

a second photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed.

Aoki et al., US 4,553,170, discloses a camera with a photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed (see column 4, lines 1-12).

It would have been obvious to a person skilled in the art, at the time of invention, to modify Osawa et al., US 6,327,085, in view of Aoki et al., US 4,553,170, to have second photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed in order to photograph continuously (see column 4, lines 1-2).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa, US 5,946,028 in view of Osawa et al., US 6,327,085.

In regard to claim 12, Ishikawa, US 5,946,028, discloses a digital camera according to claim 11, but lacks the limitation wherein said optical element is at least one of semitransparent mirror, infrared cutting filter, spatial modulation element and ND filter.

Osawa et al., US 6,327,085, discloses a camera with a semitransparent quick return mirror used to direct the image to the viewfinder and let the light pass through the mirror (see figure 3, element 12 and column 12, lines 46-47). It would have obvious to a person skilled in the art at the time of invention to modify Ishikawa, US 5,946,028, in view of Osawa et al, US 6,327,085, to have a semitransparent quick-return mirror in order to view the image through the viewfinder and allow the image to pass through the mirror to reach other parts of the camera as taught by Ishikawa, US 5,946,028.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa US 5,946,028 in view of Aoki, US 5,920,347.

In regard to claim 14, a digital camera according to claim 10, but lacks wherein said optical element is moved between the advanced position and the retracted position by a movement other than rotation.

Aoki, US 5,920,347, discloses a camera with a mirror-moving unit (22m) that is raised and lower by a movement other than rotation (see figures 5 and 6).

It would have been obvious to a skilled in the art, at the time of invention, to modify Ishikawa, US 5,946,028, in view of Aoki, US 5,920,347, to have the optical element moved between the advanced position and the retracted position by a movement

other than rotation in order to move the mirror out of the optical path (see column 7, lines 44-47).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art discloses a camera with a quick return mirror:

Kawahara et al., US 4,692,815.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 703-305-8623. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary, Vu Le can be reached on 703-308-6613. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

gvs

VU LE
PRIMARY EXAMINER

